

2015 Drought & Flood Prep

Statewide Emergency Planning Committee

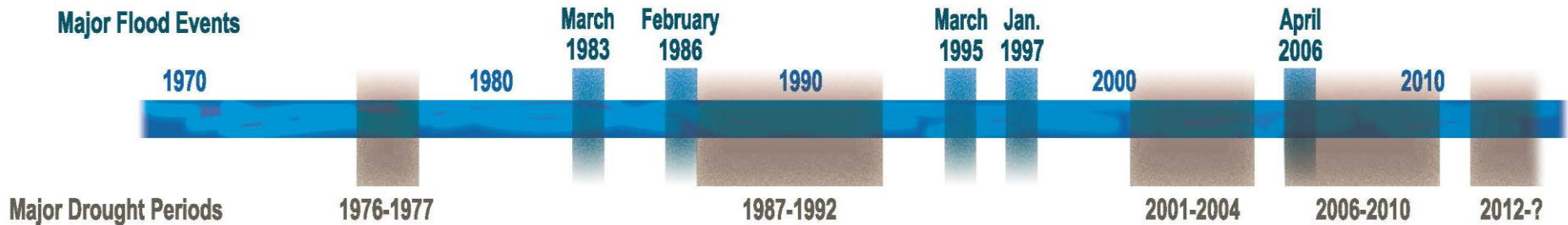
DROUGHT & FLOOD PREPAREDNESS & RESPONSE

November 18, 2015



John Paasch, Chief
Flood Operations Branch
Department of Water Resources

California's Water Management Challenge: A Tale of Two Extremes



California's Drought



- Governor Declared Drought Emergency
- 2015 - 4th dry year statewide
- January 2015 – Driest in most areas
- 2014 - Warmest year on record
- 2012-2014 - Driest 3 years on record
- 2015 - Forecast Warmer and dry
- Record Low Snowpack
- Statewide storage is like 2013/14
- Groundwater basins continue to be depleted
- Local conditions are degrading

Statewide Drought Conditions

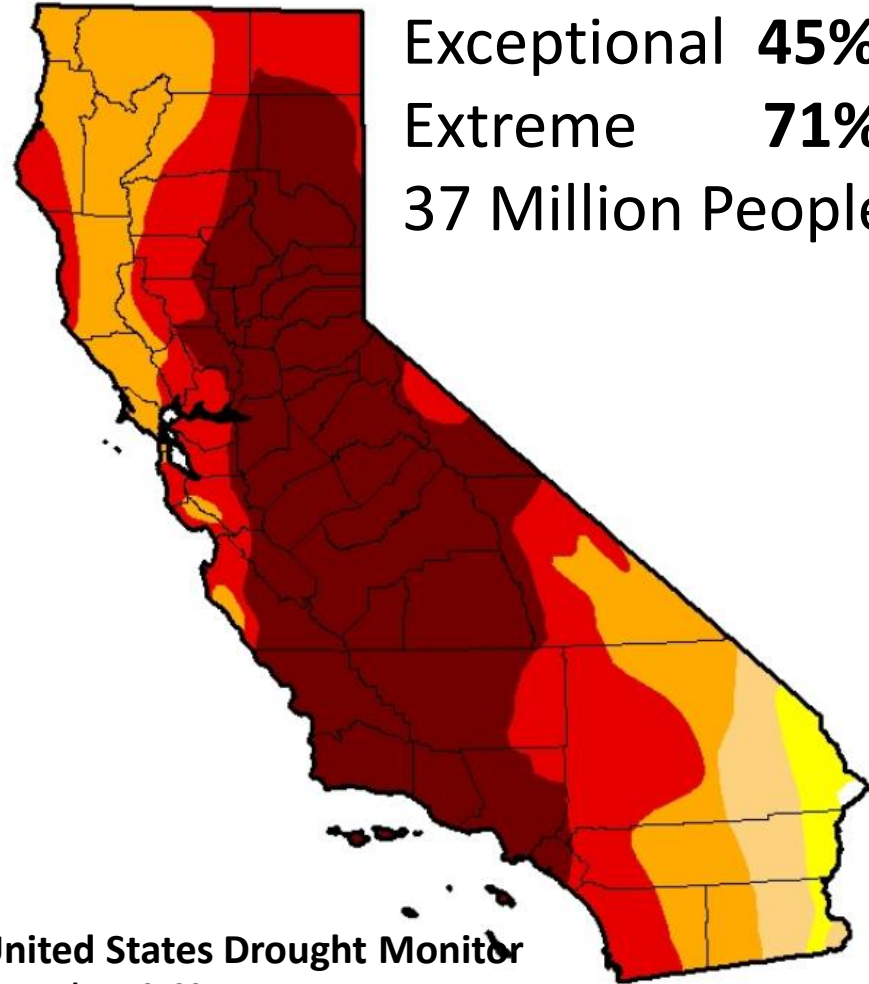
**Official State of Emergency
Declared on
January 17, 2014**

Local Emergencies Declared

- 25 Counties
- 10 Cities
- 9 Tribal Reservations
- 12 Special Districts

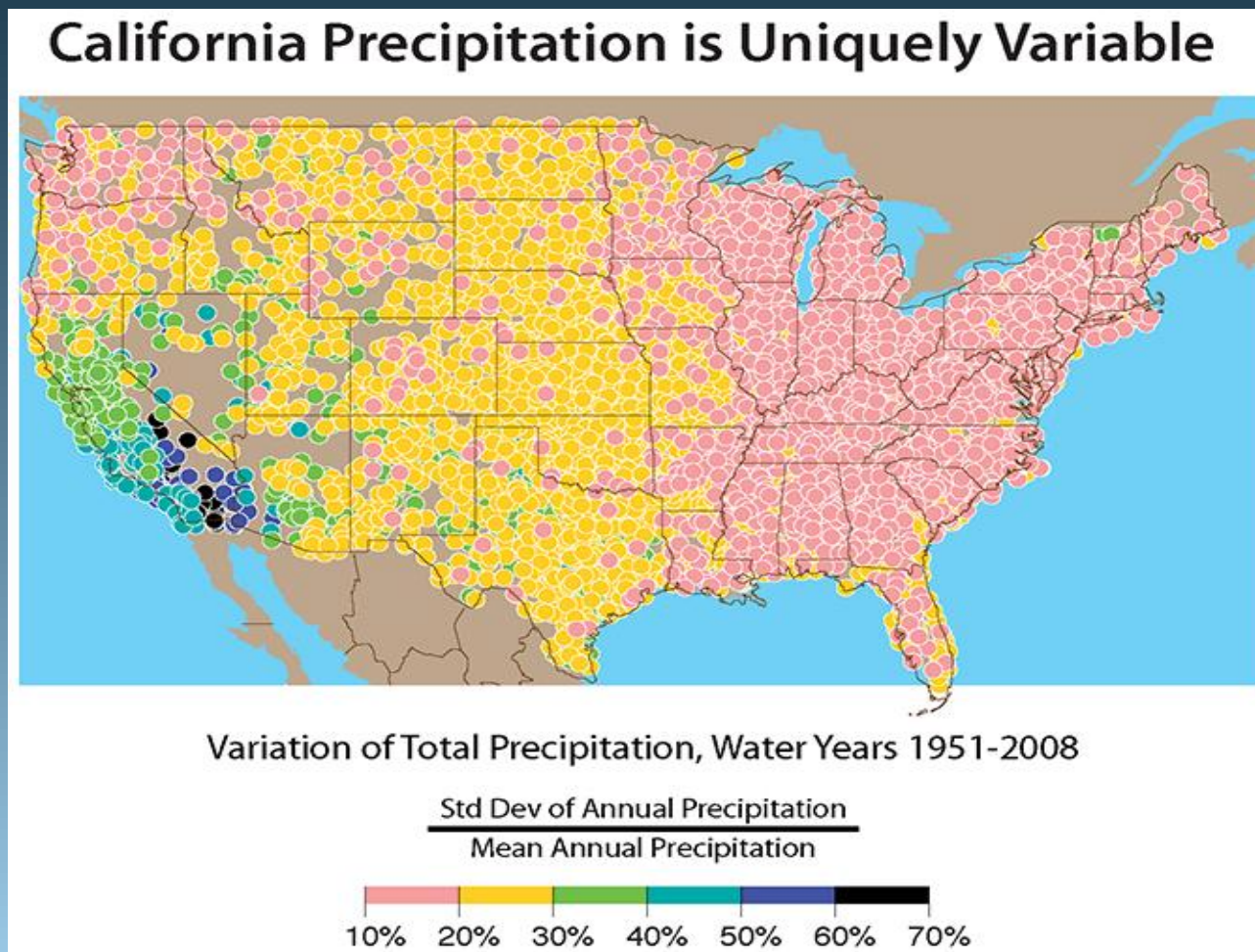
County & Tribal Drought Task Force

- 29 Counties
- 4 Tribes



United States Drought Monitor
November 10, 2015

More of CA's precip falls in fewer storms than anywhere else in the nation.

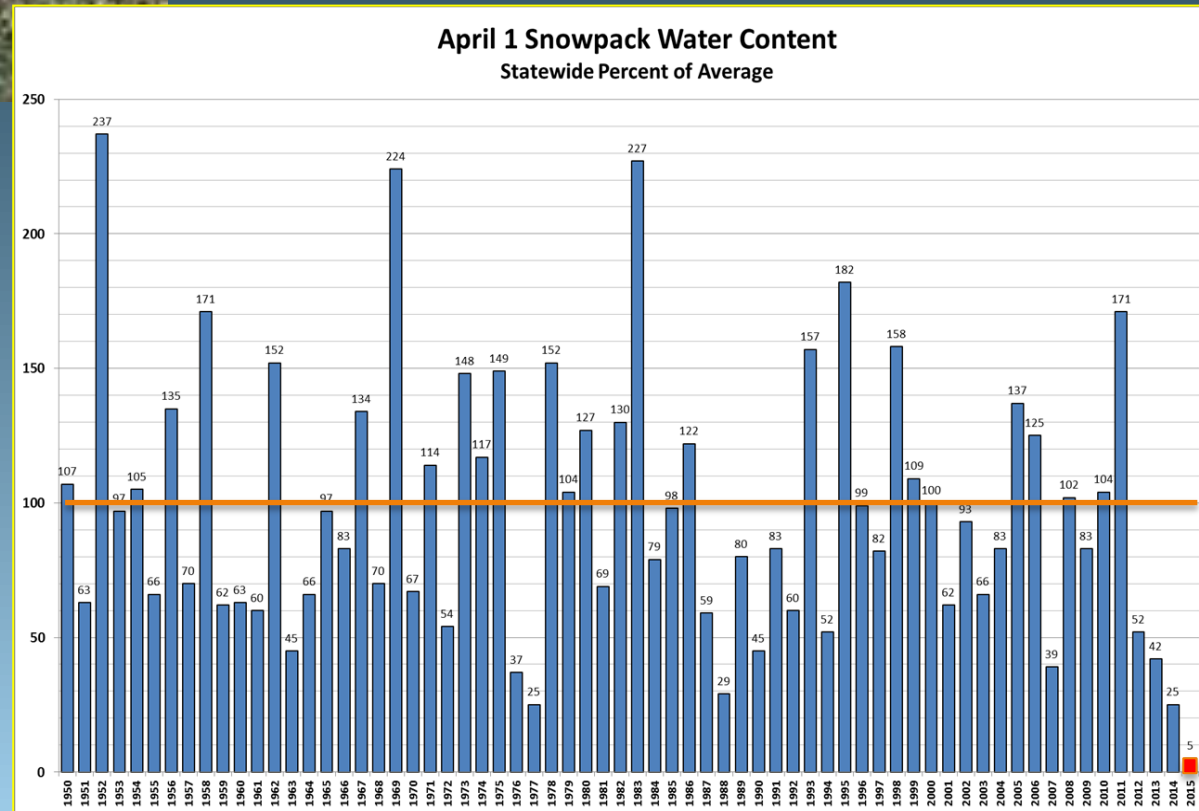




2015 Statewide Snow Water Content

Normally - 1/3 of Water Storage

- April 1st - 25% of Historic Low
 - No Snow Storage
 - Record Low Runoff
 - Loss of Cold Water
- ? 2016 ?**
(already at 2.0 in)

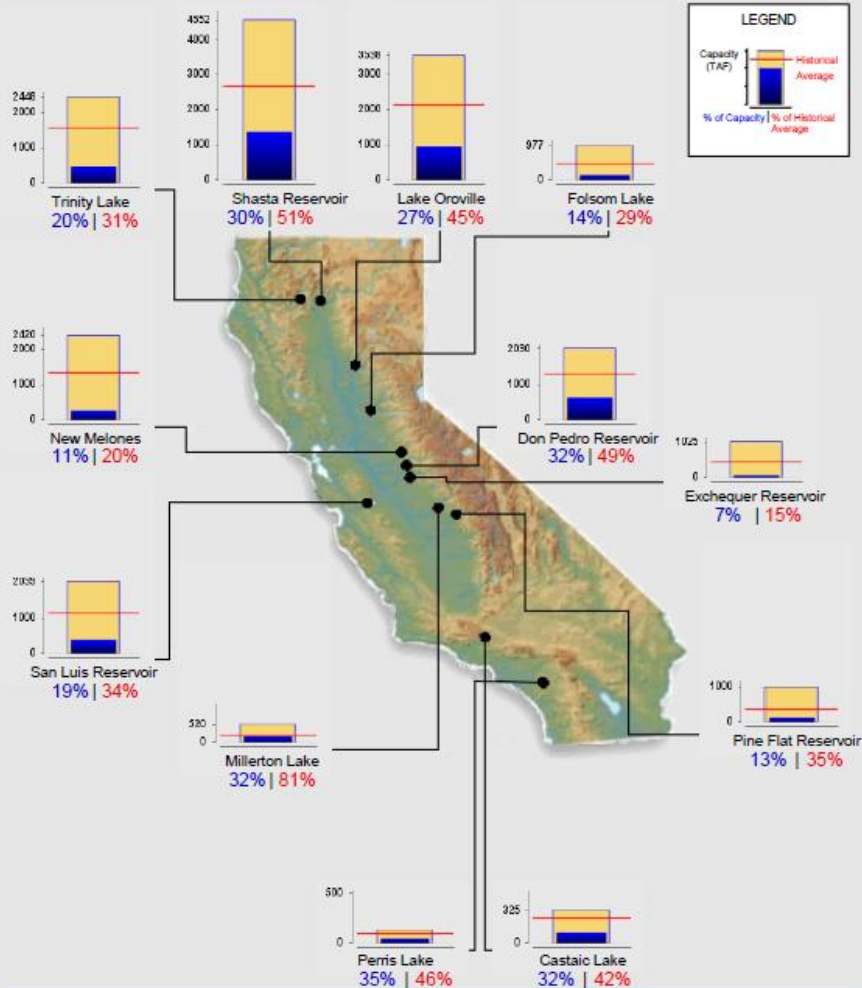




Reservoir Conditions

Ending At Midnight - November 16, 2015

CURRENT RESERVOIR CONDITIONS



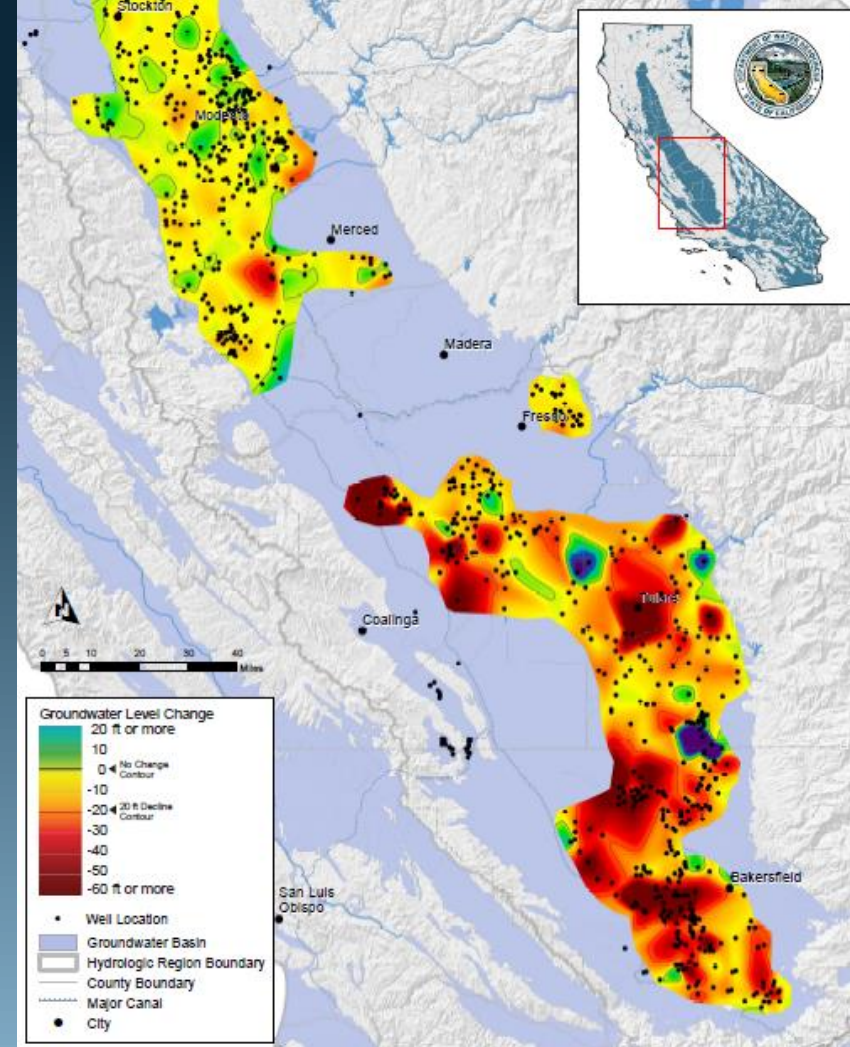
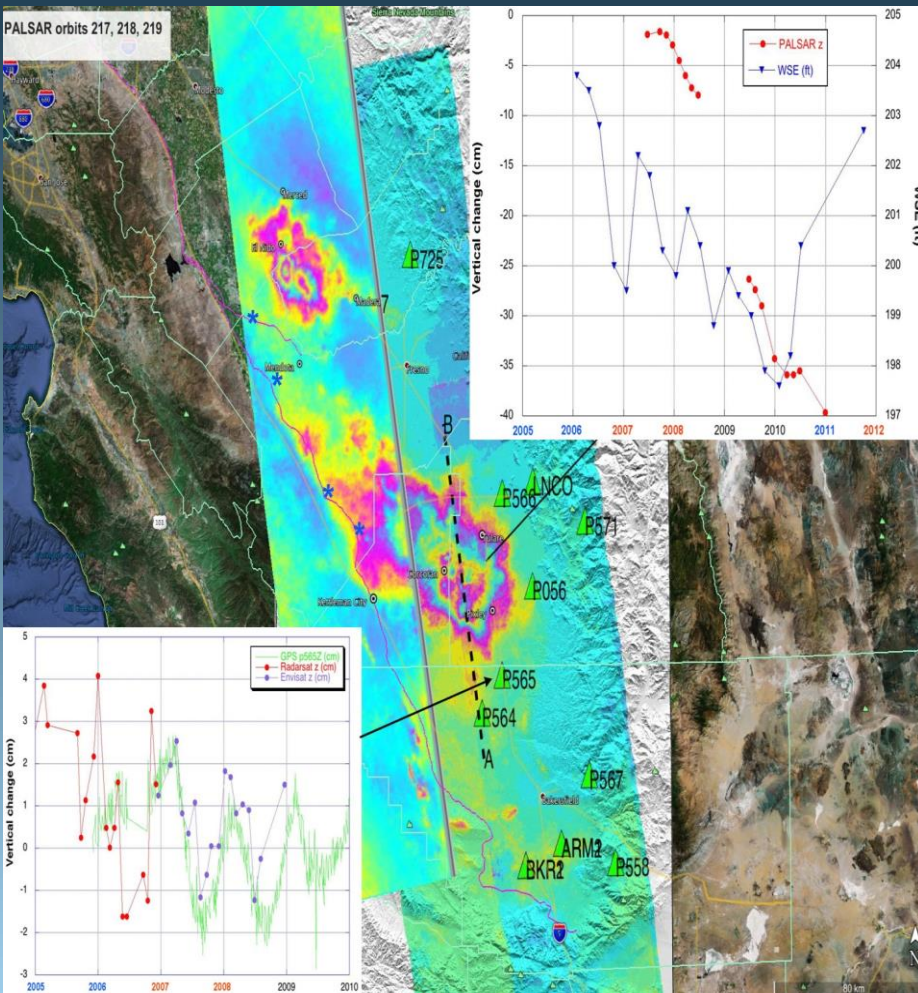
Graph Updated 11/17/2015 01:15 PM



	% Cap	% Avg
Trinity	20	31
Shasta	30	51
Oroville	27	45
Folsom	14	29
New Melones	11	20
San Luis	19	34

Groundwater Change

Wells Dry, Location, Alternatives



Land Subsidence

Monitor, Reduce Pumping, Recharge Zones

Dry 2016?

- **Maintain High Level of Conservation**
- **Reassess Contingency Plans**
- **Advance Planning – Health and Safety**
- **Increased Oversight of Groundwater**
- **Expand Local Support**
- **Response Actions – Resiliency**
 - Additional Salinity Barriers
 - Reoperation of Key Reservoirs

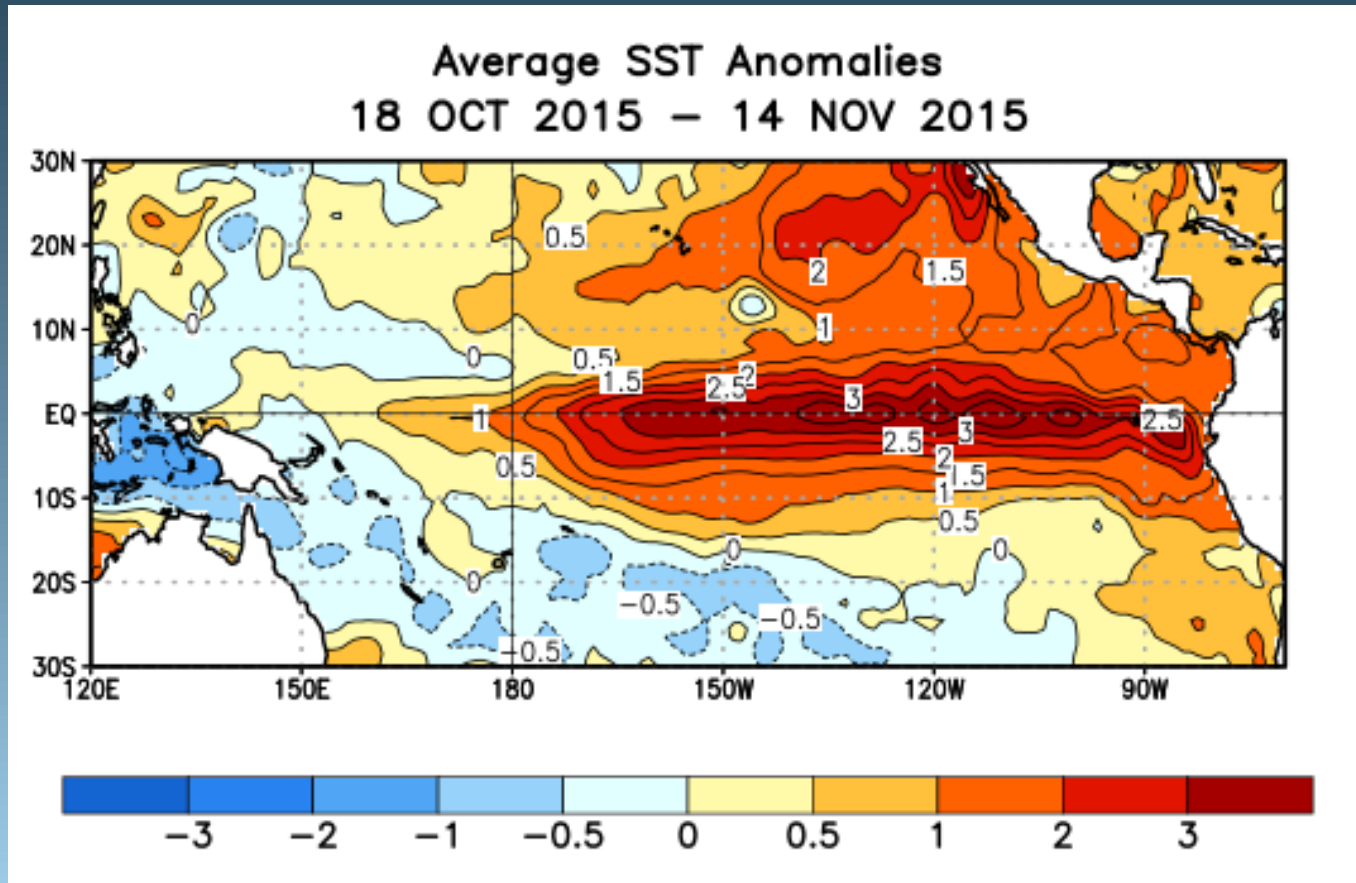
What about El Niño?



D R O U G H T & F L O O D P R E P A R E D N E S S & R E S P O N S E

What is El Niño?

During the last four weeks, equatorial SSTs were above average across the central and eastern Pacific, with the largest anomalies in the east-central and eastern Pacific.

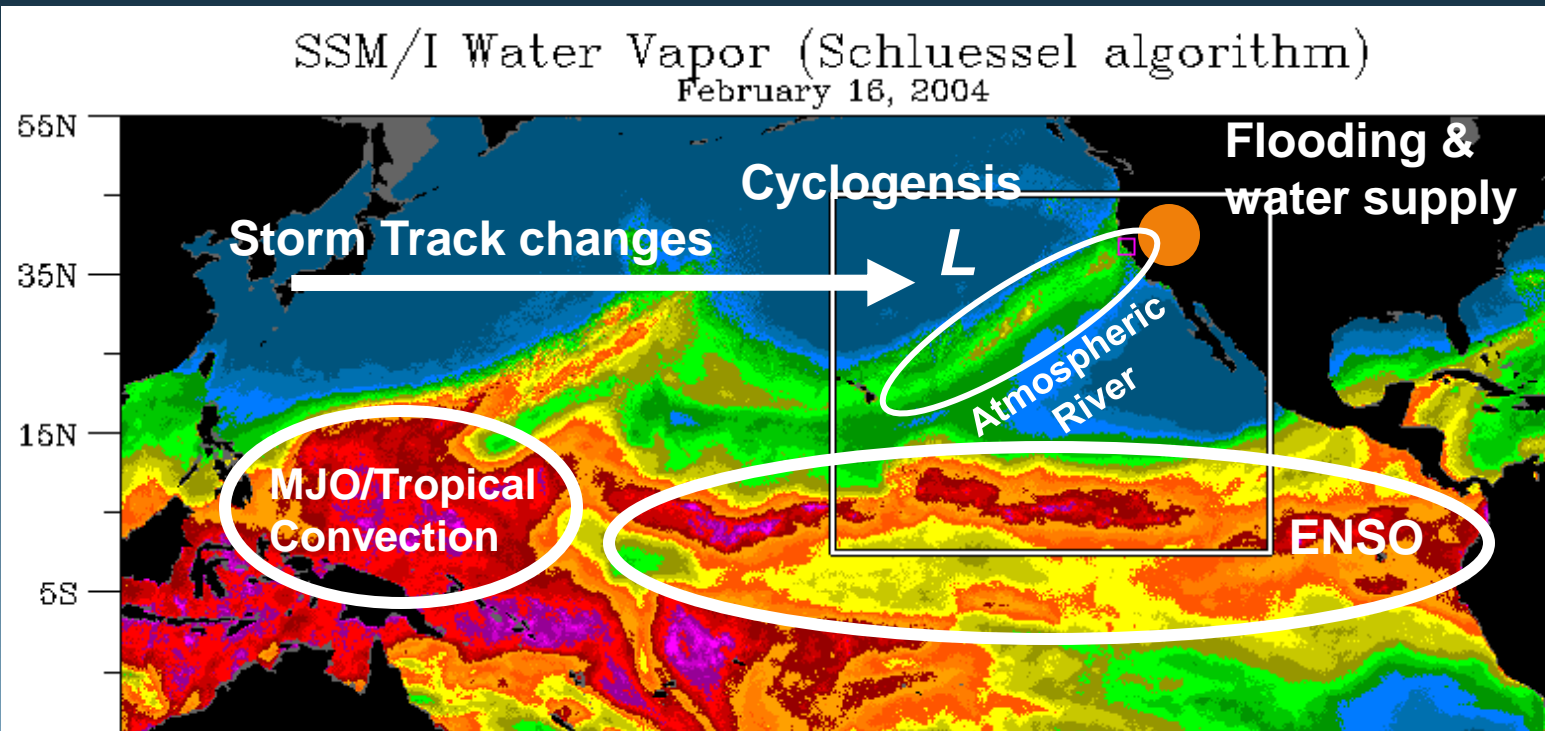


Past Strong El Nino Outcomes 8-Station Index (Northern Ca)

- WY1958 70.4 inches (140% of average)
- WY1966 36.2 inches (72% of average)
- WY1973 51.7 inches (103% of average)
- WY1983 88.5 inches (177% of average)*
- WY1992 36.0 inches (72% of average)
- WY1998 82.4 inches (165% of average)

*Wettest Year on Record

Key Phenomena Affecting California Water Supply/Flooding:



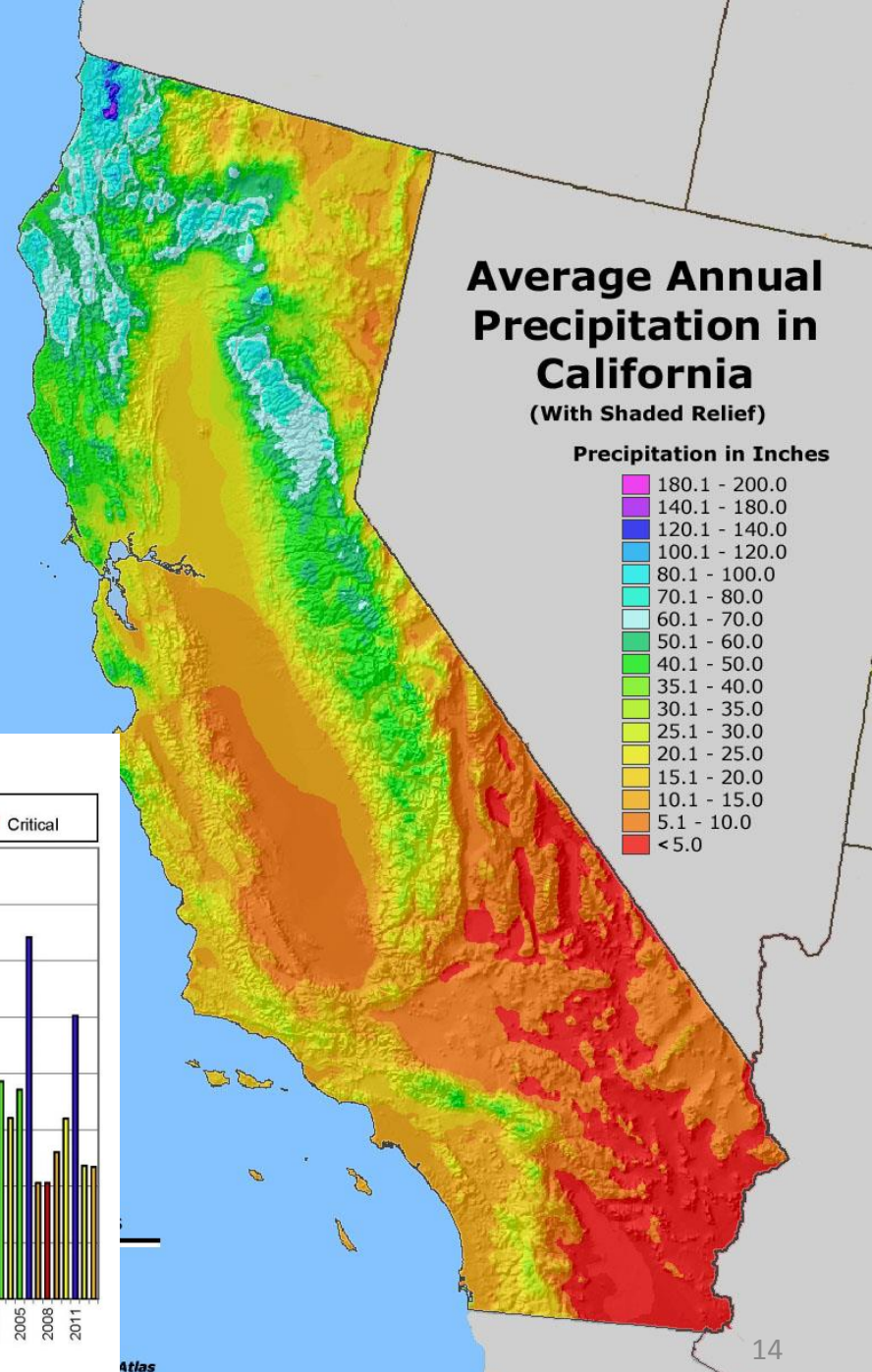
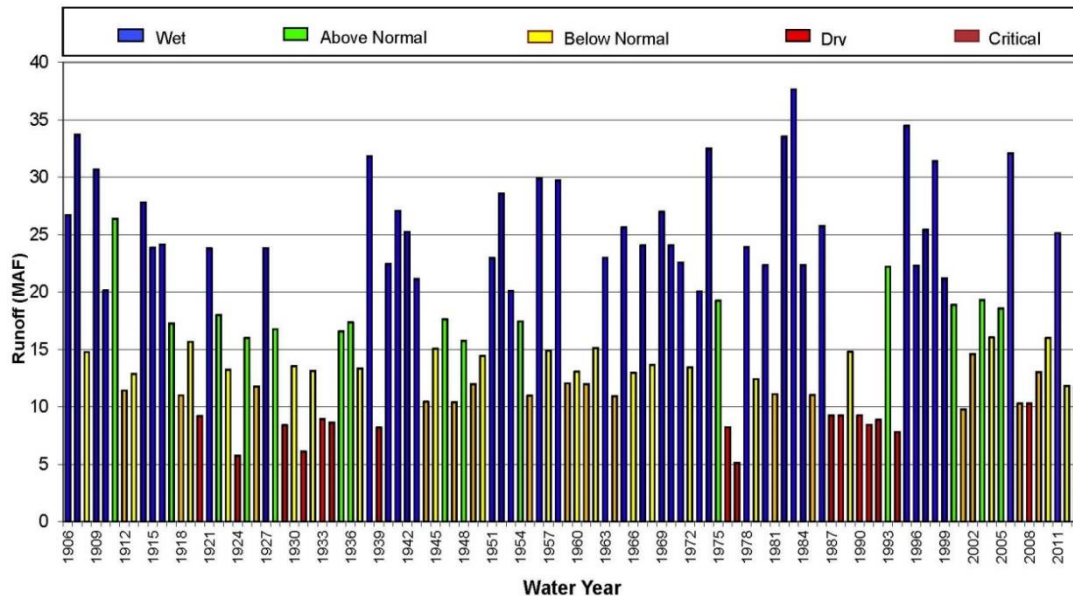
The size and number of the AR events result from the alignment of key processes

California Precipitation

**Variable & Extreme
Over Time & Location**

**Most Precipitation Occurs
November - March**

Sacramento Valley Water Year Types

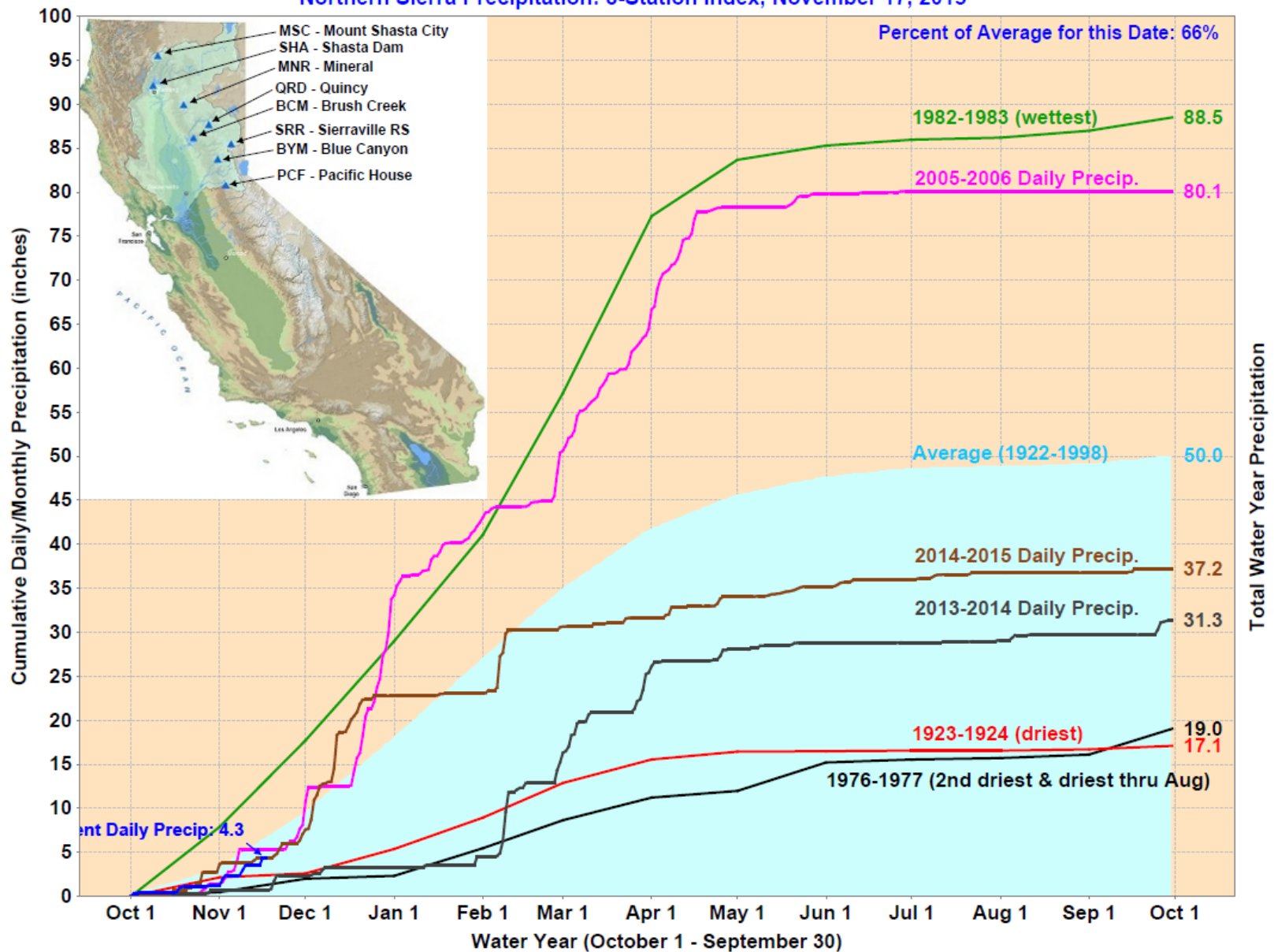


California Water Projects

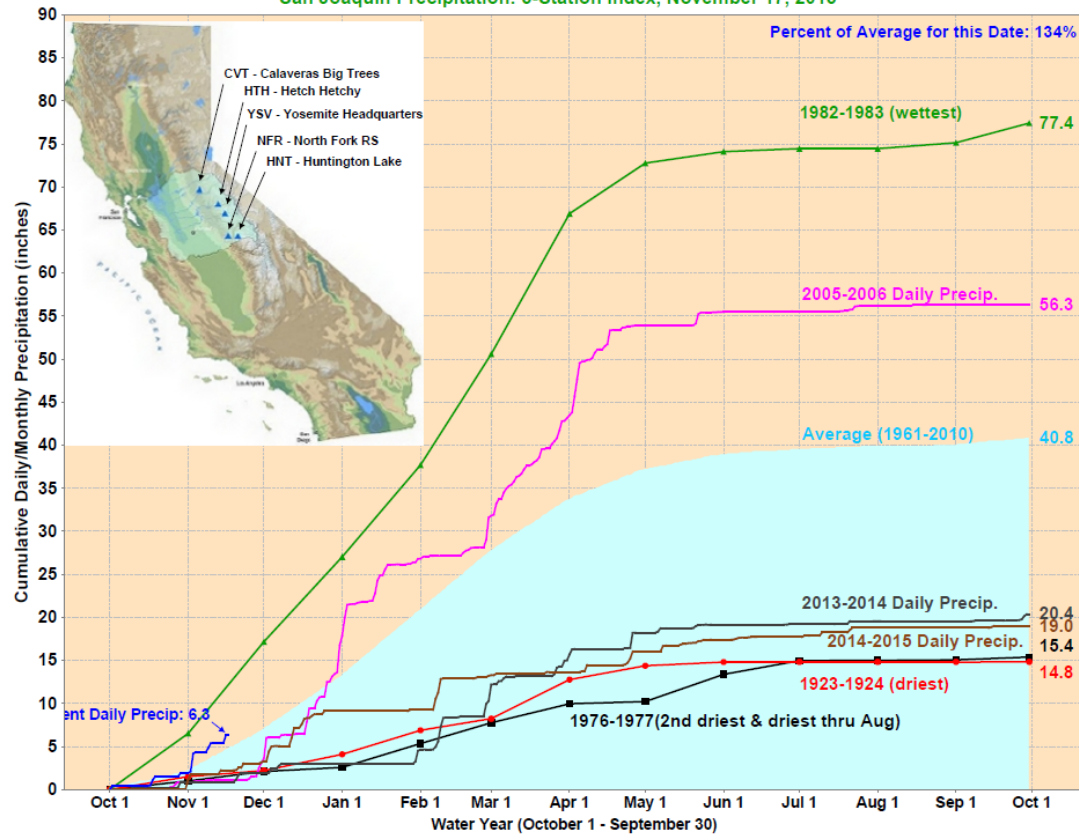
Major Plumbing



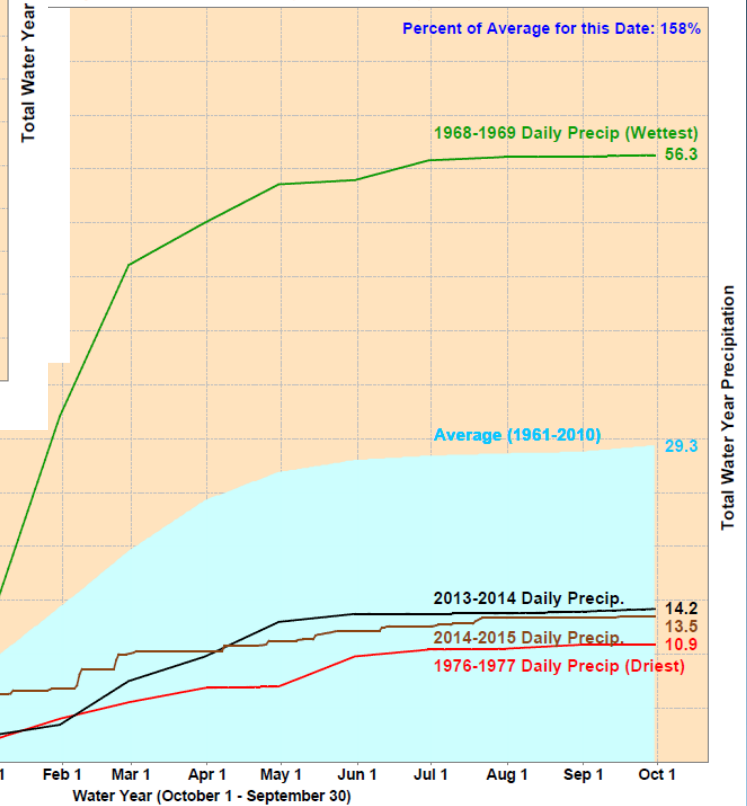
Northern Sierra Precipitation: 8-Station Index, November 17, 2015



San Joaquin Precipitation: 5-Station Index, November 17, 2015



Precipitation: 6-Station Index, November 17, 2015

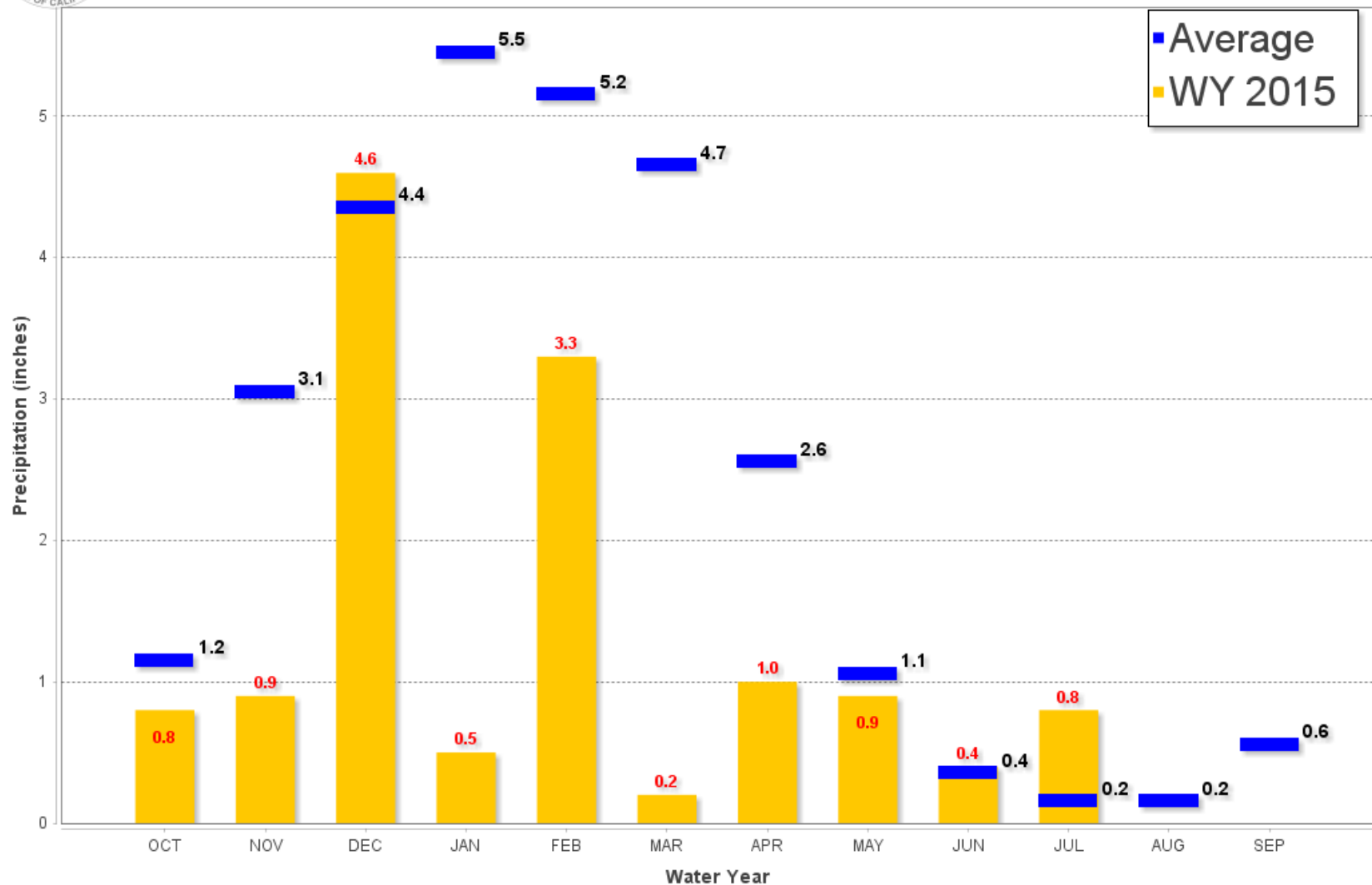




Tulare Basin 6-Station

Precipitation Index for Water Year 2015 - Updated on August 28, 2015 08:30 AM

Note: Monthly totals may not add up to seasonal total because of rounding



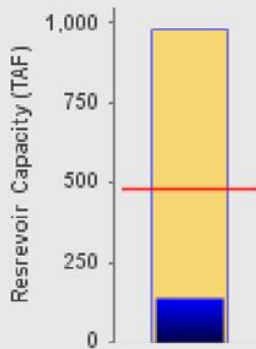


Reservoir Conditions - Folsom Lake



Folsom Lake Conditions

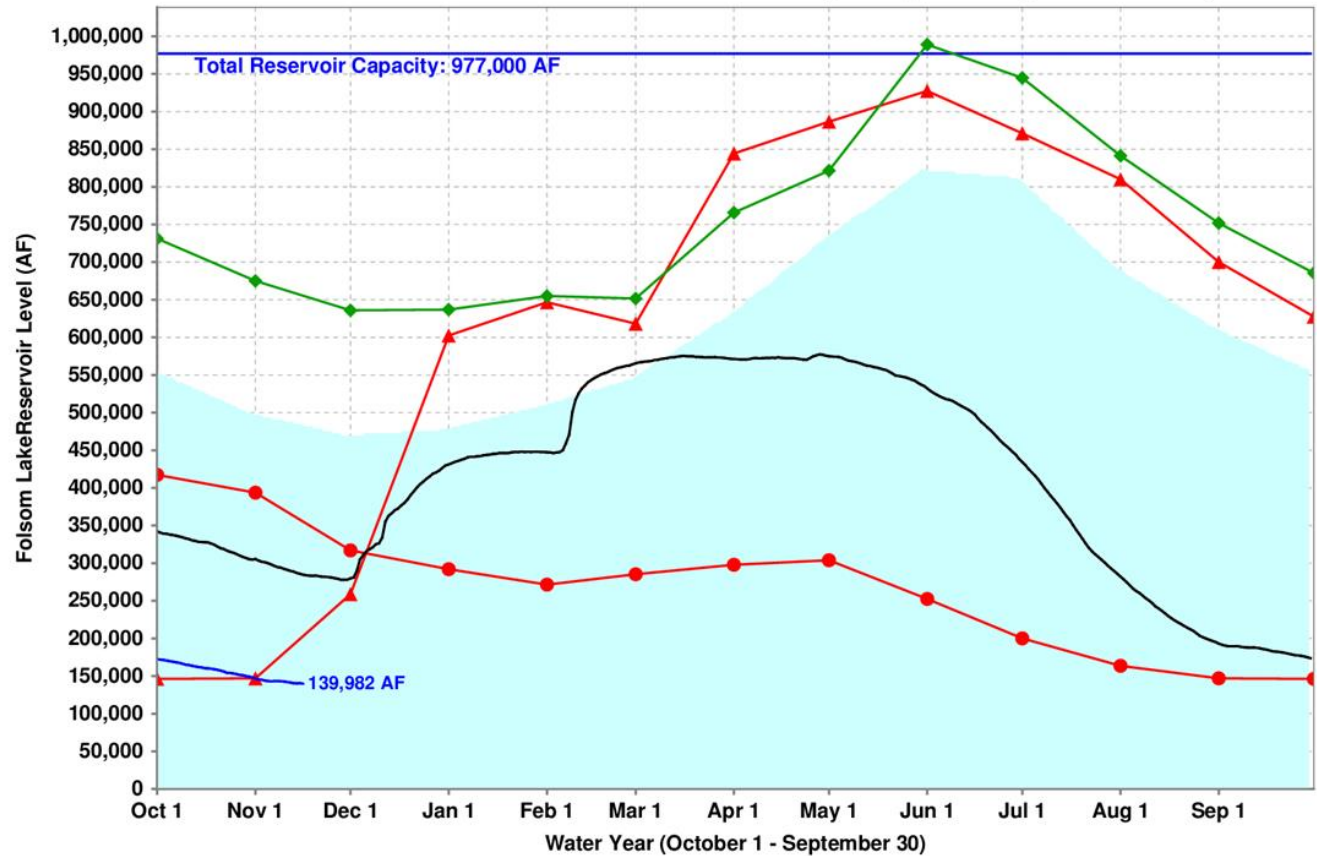
(as of Midnight - November 16, 2015)



Current Level: 139,982 AF

14% (Total Capacity) | 29% (Historical Avg.)

Folsom Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight November 16, 2015



Historical Average Total Reservoir Capacity 1976-1977 (Driest) 1977-1978 1982-1983 (Wettest) 2014-2015
Current: 2015-2016

Data Updated 11/17/2015 07:45 AM

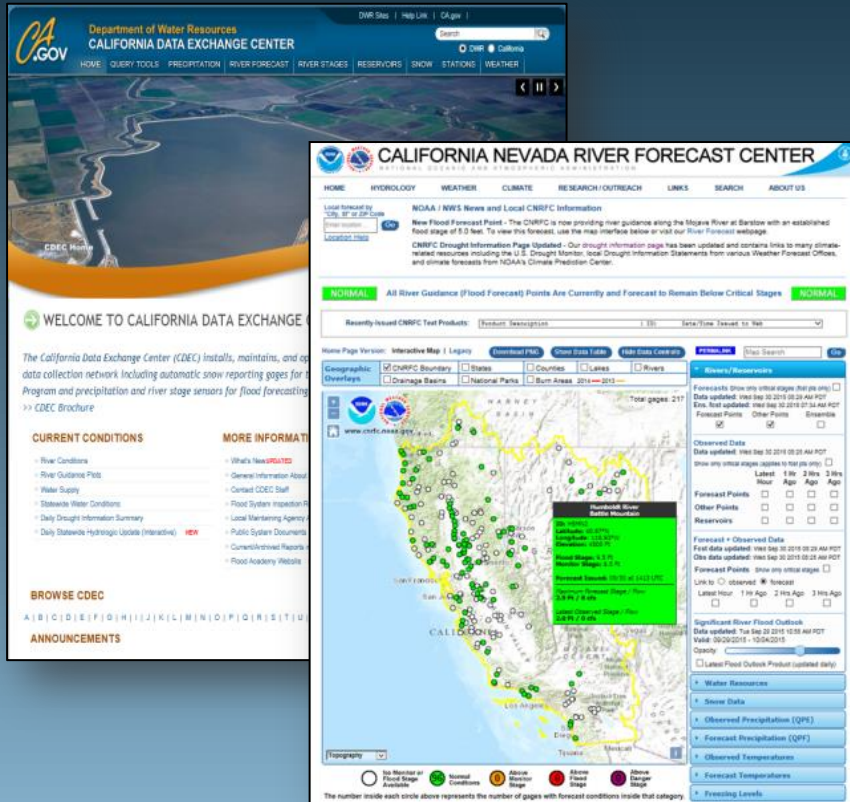
What if it stays dry?

- **Advance Planning for Dry 2016 and 2017**
- **Increased Monitoring and Modeling**
- **Assess Contingency Plans**
- **Continue to Support Collaborative Efforts**
- **Conserve What You Have!**

What if it gets wet?

- **Advance Planning for Winter Storms**
 - **Maintain flood system facilities**
 - **Monitor Forecasts and Conditions**
 - **Assess Contingency Plans**
-
- **Know your risk and be ready!**

Flood Operations Center Situational Awareness



- Historical data
- River stages
- Reservoir levels and releases
- Weather forecasts
- Precipitation data
- Snow data

Online Weather-Hydrology Briefings: Presented by DWR and the National Weather Service's California-Nevada River Forecast Center, are available to flood emergency response agencies during flood season.

Flood Operations Center

Operational Readiness



- Operational Intelligence
- Flood Fight Materials
- Flood Fight Training
- Flood Fight Specialists

Preseason Flood Coordination:

Pre-event coordination improves emergency preparedness by identifying and reinforcing areas of expertise, available resources, and planning agreement.

Preparedness Strategies



NFIP

Flood Fight
&
Resources



Flood
Preseason
Meetings

DWR



Grants

Outreach



Web Resources

California Storm Ready

<http://storms.ca.gov/>

California Data Exchange Center (CDEC)

<http://cdec.water.ca.gov>

California Nevada River Forecast Center (CNRFC)

<http://www.cnrfc.noaa.gov/>

Flood Operation Center (916) 574-2619

flood_center@water.ca.gov

CA's Flood Future Report

<http://www.water.ca.gov/sfmp/flood-future-report.cfm>

Questions?

DROUGHT & FLOOD PREPAREDNESS & RESPONSE



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